ABSTRACT OF THE DISCLOSURE

A radiation measurement device for determining a wavelength-related characteristic of radiation from a radiation source is provided. The device includes a wavelength-dependent optical element (e.g., bandpass filter), and an optical power-measuring detector (e.g., photodetector). At least one optical beam is incident onto a polarization-sensitive reflective and/or transmissive surface positioned along an optical path of the device, is transmitted by the wavelength-dependent optical element, and is received by the optical power-measuring detector along the optical path. The radiation measurement device further includes a linear polarizer placed along the optical path prior to the optical power-measuring detector. In operation, the linear polarizer ensures that the beam received from the polarization-sensitive reflective and/or transmissive surface has a substantially fixed state of polarization, regardless of the polarization state of the original incident optical beam, to thereby reduce or eliminate uncontrolled polarization-dependent errors in the radiation measurement device.